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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,511	12/21/2001	Shigeo Kittaka	02410268AA	2183

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WHITHAM, CURTIS & CHRISTOFFERSON, P.C.  
11491 SUNSET HILLS ROAD  
SUITE 340  
RESTON, VA 20190

EXAMINER

NGUYEN, TUAN M

ART UNIT PAPER NUMBER

2828

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/024,511

Applicant(s)

KITAKA ET AL.

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Dai et al (US patent 5,345,456).

With respect to claims 1 and 10, Dai et al show in figures 1-2 and 10 an optical device made of a periodic multiplayer structure (26,28), a beam sources ( $\omega_1$ ,  $\omega_2$ ) optically couple to at least one end surface of said periodic multiplayer structure(26, 28), said one end surface being non-parallel to layer surface of said periodic multiplayer structure (26,28) and beam detection means (detector array) for detecting a light beam exiting from at least one surface of said periodic multiplayer structure at a specific angle for a specific wavelength, said one surface being parallel to said layer surface of said periodic multiplayer structure, and a semiconductor laser disposed to direct light towards said first surface, note col. 4 line 36 to col. 10 line 10.

With respect to claims 2-3, figures 1-2, 6 and 9-10 show the optical device is made of multiplayer film formed on a substrate transparent and to the wavelength used and the periodic

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multiplayer structure having layer surface perpendicular to a surface of a substrate. Note col. 4 line 36 to col. 10 line 10.

With respect to claim 4, Dai et al discloses the beam source is constituted by a semiconductor laser, note col. 4.

With respect to claim 5, Dai et al discloses beam detecting means is constituted by at least one photo detector, see figure 10.

With respect to claims 6-9, Dai et al discloses the substrate on which said multiplayer film is formed, a semiconductor and a photo detector are mount on the same surface, see figures 1-2 and 6-15.

With respect to claims 11-13, Dai et al discloses a common substrate supporting said optical device, said semiconductor laser, photo detector, and substrate is transparent and is contacted with second surface of said periodic multiplayer structure, note col. 2 line 44 to col. 11 line 59, see figures 1-2 and 6-15.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al (US patent 5,345,456) in view of Normandin et al (US patent 5,051,617).

With respect to claims 14-15, Dai et al disclose the optical device made of a periodic multiplayer comprises of silicon layer , note col. 5. However Dai et al do not disclose the multiplayer structure separated by layers of air. Where as Normandin et al disclose the air layers, note col. 4. For the advantageous of spatially addressable surface emission sum frequency device , it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Dai with the periodic multiplayer structure comprises layers of air as taught or suggested by Normandin et al.

With respect to claims 16-17, Dai et al discloses the reflective layer on a surface of said periodic multiplayer, note col. 9, see figure 9.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

#### **Citation Of The Pertinent References**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclose.

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The patent to Ford et al (US patent 5,303,319) disclose ion beam deposited multiplayer waveguides and resonators.

The patent to Shimizu et al (US patent 4,930,132) disclose second harmonic wave generating device having active layer and second harmonic wave generating layer on same substrate.

The patent to Chraplyvy et al (US patent 4,905,253) disclose distributed Bragg reflector laser for frequency modulated communication systems.

The patent to Alferness et al (US patent 4,904,045) disclose grating coupler with monolithically integrated quantum well index modulator.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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***Communication Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247.

The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip  
SPE  
Art unit 2828

TMN  
July 28, 2003